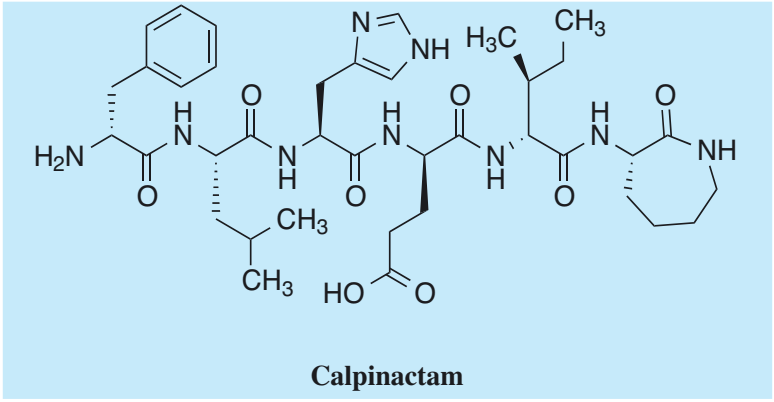
Calpinactam

1. Discovery, producing organism and structure[1-3)]

Calpinactam was isolated from a culture broth of a fungal strain *Mortierella alpina* FKI-4905 and shown to be selective antimycobacterial agents. Calpinactam is a unique linear hexapeptide with a caprolactam ring at its C-terminal. Total synthesis of calpinactam was also achieved by Nagai *et al*.[3)](See Appendix I).

Mortierella alpina FKI-4905
Bar: 10 μm



Calpinactam

2. Physical data [1)]

White powder. $C_{38}H_{57}N_9O_8$; mol wt 767.91. Sol. in DMSO, MeOH.

3. Biological Activity[1)]

1) Antimycobacterial activity[1)]

Calpinactam exhibits the growth of *Mycobacterium tuberculosis* with an MIC of 12.5 μg/ml in liquid microdilution method. Calpinactam also exhibits selective activity against *Mycobacterium smegmatis*.

2) Antimicrobial activity[1)]

Calpinactam exhibited no bioactivity against organisms tested.

Test organism	Inhibition zone (mm) at 5 μg/6 mmdisk	
	Calpinactam	Isoniazid
Staphylococcus aureus ATCC6538P	–	–
Bacillus subtilis ATCC6633	–	–
Micrococcus luteus ATCC9341	–	–
Mycobacterium smegmatis ATCC607	22	31
Esherichia coli NIHJ	–	–
Pseudomonas aeruginosa IFO3080	–	–
Xanthomonas campestris KB88	–	–
Acholeplasma laidlawii KB174	–	–
Pyricularia oryzae KB180	–	–
Aspergillus niger ATCC9642	–	–
Mucor racemosus IFO4581	–	–
Candida albicans ATCC645648	–	–
Saccharomyces cerevisiae KF26	–	–

4. References

1. [1057] N. Koyama *et al*., *Org*. *Lett*. **12**, 432-435 (2010)
2. [1062] N. Koyama *et al*., *J*. *Antibiot*. **63**, 183-186 (2010)
3. K. Nagai *et al*., *Bioorg*. *Med*. *Chem*. *Lett*. **22**, 7739-7741 (2012)